

Claims

What is claimed is:

Sub A2 1. A method for providing user interfaces in a first network including first devices interconnected via a communication medium and at least one interface device connecting said first network to at least a second network providing services, the user interfaces for controlling the devices that are currently connected to the first network and furnishing services of the second network to at least a user, comprising the steps of:

in each of one or more devices in the first network:

(a) obtaining information from one or more of said first devices currently connected to the first network, said information including device information; and

(b) generating a user interface description including:

(1) at least one reference associated with the device information of each of said one or more first devices, and

(2) at least one reference associated with the services provided by the second network.

2. The method of claim 1, wherein the first network comprises a 1394 network, and the second network comprises a non-1394 network.

3. The method of claim 1, wherein the interface device comprises a gateway device.

4. The method of claim 1, wherein the second network comprises a plurality of interconnected second devices providing one or more services.

5. The method of claim 4, wherein each of said second devices comprises at least one computer system programmed to provide services.

6. The method of claim 4, wherein:
the second network comprises the Internet, and
at least one of said second devices providing services comprises one or more web servers providing services.

7. The method of claim 6, wherein a service provided by at least one of the devices connected to the second network comprises a web site service.

8. The method of claim 1, wherein each reference in the user interface description associated to services provided by the second network comprises at least one hyper-text link to service information in the second network.

9. The method of claim 1 further including the step of:

(a) displaying a user interface based on said user interface description on a device connected to the first network capable of displaying a user interface, for user control of said first devices and communication with the second network.

10. The method of claim 9, wherein the step of displaying each user interface further includes the steps of:

using each reference in the corresponding user interface description to access the associated information in each first device;

5 using each reference associated with services provided by the second network to access corresponding service information;

generating the user interface including: (1) information corresponding to each first device using the accessed information in each first device, and (2) service information; and

10 displaying the user interface on said device capable of displaying a user interface.

11. The method of claim 1, wherein the step of generating a user interface description further comprises the steps of: associating a hyper-text link with the device information of one or more of said first devices, and associating at least a hyper-text link with the service information provided by the second network.

12. The method of claim 1, wherein: (1) the device information in each device in the first network includes a user interface description for user interaction with that device, and (2) the service information in the second network includes at least a user interface description for user interaction with a service.

13. The method of claim 1, wherein each reference associated with services provided by the second network comprises at least one hyper-text link to

service information in the second network, wherein the service information comprises at least identification information representing a service.

14. The method of claim 13, wherein the identification information comprises a logo information file including a link to a logo graphic representing the service.

15. The method of claim 1, wherein the second network includes at least a first portal for providing services, and a reference associated with services provided by the second network comprises at least one hyper-text link to said first portal, wherein the first portal includes service information comprising at least identification information representing said services provided by the first portal.

16. The method of claim 15, wherein the said identification information in the first portal further comprises a hyper-link to service information provided by a second portal in the second network.

17. The method of claim 16, wherein:

the second network comprises a plurality of interconnected computer systems programmed to provide services;

the first portal comprises one or more of said computer systems providing services of the first portal; and

the second portal comprises one or more of said computer systems providing services of the second portal.

18. A network system for performing services, comprising:
- a local network of first devices interconnected via a communication medium;
 - an interface device connecting the local network to an external network providing services,
 - a user interface description generation agent in at least one of said first devices configured for:
 - (a) obtaining information from one or more of said first devices currently connected to the local network, said information including device information; and
 - (b) generating a user interface description including:
 - (1) at least one reference associated with the device information of each of said one or more first devices, and
 - (2) at least one reference associated with the services provided by the external network.

19. The network system of claim 18, wherein the local network comprises a 1394 network, and the external network comprises a non-1394 network.

20. The network system of claim 18, wherein the interface device comprises a gateway device.

21. The network system of claim 18, wherein the external network comprises a plurality of interconnected second devices providing one or more services.

22. The network system of claim 21, wherein each of said second devices comprises at least one computer system programmed to provide services.

23. The network system of claim 21, wherein:
the second network comprises the Internet, and
at least one of said second devices providing services comprises one or more web servers providing services.

24. The network system of claim 23, wherein a service provided by at least one of the devices connected to the second network comprises a web site service.

25. The network system of claim 18, wherein each reference in the user interface description associated to services provided by the external network comprises at least one hyper-text link to service information in the external network.

26. The network system of claim 18, wherein:
at least one of the first devices in the local network includes a user interface device capable of displaying a user interface, the user interface device including a user interface generation agent configured for:

5 displaying a user interface based on said user interface description, for
user control of said first devices and communication with the external
network.

27. The network system claim 26, wherein the user interface generation
agent in the user interface device is further configured for:

using each reference in the corresponding user interface description to
access the associated information in each first device;

5 using each reference associated with services provided by the external
network to access corresponding service information;

generating the user interface including: (1) information corresponding
to each first device using the accessed information in each first device, and
10 (2) service information; and

displaying the user interface on said user interface device.

28. The network system of claim 27, wherein each reference associated
with services provided by the external network comprises at least one hyper-text link
to service information in the external network, wherein the service information
comprises at least identification information representing a service.

29. The network system of claim 28, wherein the identification information
comprises a logo information file including a link to a logo graphic representing the
service.

30. The network system of claim 27 wherein the external network includes at least a first portal for providing services, and a reference in the user interface description associated with services provided by the external network comprises at least one hyper-text link to said first portal, wherein the first portal includes service information comprising at least identification information representing said services provided by the first portal.

31. The network system of claim 30, wherein said identification information in the first portal further comprises a hyper-link to service information provided by a second portal in the external network.

32. The network system of claim 31, wherein:

the external network comprises a plurality of interconnected computer systems programmed to provide services;

the first portal comprises one or more of said computer systems providing services of the first portal; and

the second portal comprises one or more of said computer systems providing services of the second portal.

33. The network system of claim 18, wherein said at least one reference associated with the services provided by the external network is predetermined.

34. The network system of claim 18, wherein the user interface description generation agent further associates a hyper-text link with the device information of

one or more of said first devices, and associates at least a hyper-text link with the service information provided by the external network, in the user interface description.

35. The network system of claim 18, wherein: (1) the device information in each device in the first network includes a user interface description for user interaction with that device, and (2) the service information in the external network includes at least a user interface description for user interaction with a service.

36. A control device for providing a user device communication and control in a local network of interconnected first devices, the local network connected via an interface device to an external network providing services, the control device comprising:

a user interface description generation agent configured for:

(a) obtaining information from one or more of said first devices currently connected to the local network, said information including device information; and

(b) generating a user interface description including:

(1) at least one reference associated with the device information of each of said one or more first devices, and

(2) at least one reference associated with the services provided by the external network.

37. The control device of claim 36, wherein the local network comprises a 1394 network, and the external network comprises a non-1394 network.

38. The control device of claim 36, wherein the interface device comprises a gateway device.

39. The control device of claim 36, wherein the external network comprises a plurality of interconnected second devices providing one or more services.

40. The control device of claim 39, wherein each of said second devices comprises at least one computer system programmed to provide services.

41. The control device of claim 39, wherein:
the second network comprises the Internet, and
at least one of said second devices providing services comprises one or more web servers providing services.

42. The control device of claim 41, wherein a service provided by at least one of the devices connected to the second network comprises a web site service.

43. The control device of claim 36, wherein each reference in the user interface description associated to services provided by the external network comprises at least one hyper-text link to service information in the external network.

44. The control device of claim 36 further comprising:
a user interface device capable of displaying a user interface; and
a user interface generation agent configured for displaying a user
interface based on said user interface description, for user control of said first
5 devices and communication with the external network.

45. The control device of claim 44, wherein the user interface generation
agent is further configured for:
using each reference in the corresponding user interface description to
access the associated information in each first device;
5 using each reference associated with services provided by the external
network to access corresponding service information;
generating the user interface including: (1) information corresponding
to each first device using the accessed information in each first device, and
(2) service information; and
10 displaying the user interface on said user interface device.

46. The control device of claim 45, wherein each reference associated with
services provided by the external network comprises at least one hyper-text link to
service information in the external network, wherein the service information
comprises at least identification information representing a service.

47. The control device of claim 46, wherein the identification information
comprises a logo information file including a link to a logo graphic representing the

service.

48. The control device of claim 45, wherein the external network includes at least a first portal for providing services, and a reference in the user interface description associated with services provided by the external network comprises at least one hyper-text link to said first portal, wherein the first portal includes service information comprising at least identification information representing said services provided by the first portal.

49. The control device of claim 48, wherein said identification information in the first portal further comprises a hyper-link to service information provided by a second portal in the external network.

50. The control device of claim 49, wherein:

the external network comprises a plurality of interconnected computer systems programmed to provide services;

the first portal comprises one or more of said computer systems providing services of the first portal; and

the second portal comprises one or more of said computer systems providing services of the second portal.

51. The control device of claim 36, wherein said at least one reference associated with the services provided by the external network is predetermined.

52. The control device of claim 36, wherein the user interface description generation agent further associates a hyper-text link with the device information of one or more of said first devices, and associates at least a hyper-text link with the service information provided by the external network, in the user interface description.

53. The control device of claim 36, wherein: (1) the device information in each device in the first network includes a user interface description for user interaction with that device, and (2) the service information in the external network includes at least a user interface description for user interaction with a service.